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THE ROLE OF UNIVERSITIES FOR ECONOMIC DEVELOPMENT IN URBAN POLES

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Abstract

Cities are widely recognised as playing a fundamental role in the promotion of the knowledge economy but most research and policy has focussed on large cities with World-class educational and research institutes and advanced clusters of economic activity. There are clear and significant gaps in the knowledge of how smaller sized cities, with different levels and types of knowledge institutions and different levels of economic activity can compete within the Knowledge Economy. Yet such cities are recognised within European Union policy as playing a vital role in the implementation of the Lisbon agenda.

This paper summarises the development phase of the URBACT II Thematic Network RUnUP (The Role of Universities for Economic Development in Urban Poles) and the perspectives of the 9 partner medium-sized European Cities in the Knowledge Economy. The network has addressed in a uniquely different way the fundamental issues of how universities should engage with their local communities with a particular focus on medium-sized cities; the role of local authorities and municipalities and the importance of triple helix structures for supporting economic development and encouraging entrepreneurship.

The network has provided a unique opportunity to examine the role of universities in urban poles from the perspective of Local Government, given the constitution of the 9 partner cities rather than a traditional model taking Universities as the point of reference.

In the development phase this unique perspective has provided valuable insights; namely that; Universities are positioned as mechanisms for research and development and subsequently licensing, patenting and spin-outs (and this is reinforced in European and National policies), although this may not be where their potential for supporting local economic development truly exists; that Local Government organisations see Universities primarily as vehicles for Education and Research & Development and expect them to support the development of their local economy by default although universities operate in regional, national and international markets and are not entirely (if at all) aligned to local priorities; and that an economic development perspective examining the needs of the local economy, its modernisation, transformation, transplantation and

new sector creation establishes common ground where local priorities can be articulated and the role of the university in this context can be openly explored and suitable knowledge transfer approaches defined in support of triple-helix development.

Keywords: Knowledge Economy, University-Business Interaction, Medium-Sized Cities

JEL Classification Codes: O18 - Regional, Urban, and Rural Analyses; O32 - Management of Technological Innovation and R&D; O12 - Microeconomic Analyses of Economic Development

1. Introduction

Since the Lisbon European Union Spring Council of 2000 set a strategic goal for the European Union to become the most dynamic and competitive knowledge based economy in the world by 2010 there has been significant research, policies and projects on how to stimulate the knowledge economy and importantly the importance of Universities within Triplex Helix Structures.

In this context the Knowledge economy relies on the transfer of knowledge from those who generate it to those who use it and can build on it. Research represents a key component of this approach and the role of universities is particularly important as actors in research, education and training. Universities account for 20% of European Research, 80% of fundamental research and employ one third of European researchers (European Commission, 2005). They transmit knowledge through education and training and have an increasing role in innovation and economic development at the regional level. In support of this the 2005 Lisbon mid-term review explicitly highlighted the importance of the role of universities in the creation, dissemination and transfer of knowledge (European Commission, 2005).

In this innovation and economic development role it is recognised that links and synergies between universities and local society (e.g. Industry, Chambers of Commerce, and Local Government) should be enhanced (European Commission, 2005). Cities are widely recognised as playing a fundamental role in the promotion of the knowledge economy but most research and policy has focussed on large cities with World-class educational and research institutes and advanced clusters of economic activity.

There are clear and significant gaps in the knowledge of how smaller sized cities, with different levels and types of knowledge institutions and different levels of economic activity can compete within the Knowledge Economy. Yet such cities are recognised within European Union policy as playing a vital role in the implementation of the Lisbon agenda. In this regard medium-sized cities of between 50,000 and 200,000 people with universities are at a considerable advantage and can gain from strong localisation economies if they have a strong knowledge base and innovation culture.

2. Research Methodology

This paper has been researched through the activities undertaken in the development phase of the URBACT II thematic network RUnUP (The Role of Universities for Economic Development in Urban Poles) between April and October 2008. The authors represent the Lead Partner of the network, Gateshead Council and an independent Lead Expert. The paper has been created through a review of the state of the art literature in the field and an individual Lead Expert visit to each of the 9 network partners. Each lead expert visit was undertaken over a series of 2 to 3 days with individual meetings with triple-helix stakeholders.

3. The Knowledge Economy and the Role of Universities

Defining the knowledge economy has been the subject of significant debate and while a number of general definitions have been articulated no single definition has been able to capture all aspects of the commodity that is knowledge (Brinkley, 2006). Given this confusion an alternative argument has emerged that the knowledge economy is not a new phenomenon and that "the economy has always been driven by knowledge leading to innovation and technological change and knowledge based institutions have helped store and share knowledge for centuries. What we see today is essentially more of the same but operating on a bigger scale and at a faster pace" (Brinkley, 2006).

For a local economy engagement in knowledge based industries (although they do not fully represent the scope of the knowledge economy) can have a significant impact, between 1995 and 2005 employment in knowledge based industries in the European Union went up by 23.9% in contrast with 5.7% for all other industries. In particular while manufacturing employment overall in the period between 1995 to 2005 declined by 5.6% on average across the EU only 2.4% of employment losses were from technology based manufacturing. In comparison knowledge based services have seen significant employment change of 30.7% across the decade in comparison to 13.5% for less knowledge intensive services.

For the partners in the RUnUP network understanding the dimensions of the knowledge economy is critical as the profitable utilisation of knowledge can have a significant impact on the modernisation of existing industries through technology adoption, the diversification of existing industries into new economic sectors, the transplantation of industry (inward investment) and creation of new economic sectors. In this regard Brinkley (2006) summarises the key features of the knowledge economy and knowledge economy organisations as follows:

- The Knowledge economy represents a "soft discontinuity" from the past; it is not a "new" economy operating to a new set of economic laws.
- A growing share of GDP devoted to knowledge intangibles compared with physical capital
- Knowledge economy organisations reorganise work to allow them to handle store and share information through knowledge management practices

- The knowledge economy is present in all sectors of the economy , not just the knowledge intensive industries
- The knowledge economy has a high and growing intensity of ICT usage by well educated knowledge workers
- The Knowledge economy consists of innovating organisations using new technologies to introduce process, organisational and presentational innovation.

European policy approaches to the knowledge economy for the most part take universities as their point of reference regarding competitive research and their contribution to the European Research Area. In particular the European Commission publication European Universities: Enhancing Europe's Research Base (European Commission, 2005) identifies the entrepreneurial role of universities as a source of spin-offs and start-up companies and their role in knowledge and technology transfer. In this context universities are seen as environments that are:

- The centre of the research and teaching systems;
- The training institutions for our future researchers;
- A point where frontier knowledge meets practical applications;
- The school and library of the knowledge society

This has led to a view of the university role in innovation and competiveness in the local economy driven by technology transfer. In this context universities have seen the growth of standard models e.g. external liaison offices, research and development offices, technology transfer offices as central mechanisms for linking academia with industry, with a particular focus on (IRE Knowledge Transfer Working Group, 2008):

- Contributing to faster and better commercialisation of research results;
- Improving innovation performance and accelerate the dissemination of new technologies;
- Better management of intellectual property and research capacities of public research organisations;
- Identifying specific research requirements through dialogue with enterprises;
- Helping companies grow and become more competitive.

Despite the creation of technology and knowledge transfer support mechanisms the strategic challenges and key issues regarding the knowledge transfer topic which are often underlined (IRE Knowledge Transfer Working Group, 2008) at a strategic level include:

- Little cooperation between firms and R&D Institutions
- Low level of SMEs participating in knowledge transfer activities
- Companies are more focused on distribution and assembling than on R&D activities

- Low technology transfer rates and a weak entrepreneurship culture
- Low creation rate of spin-offs

Such support mechanisms designed to raise R&D levels are likely to be most appropriate for and successful in, those economic areas where levels of innovation in product, process and service developments are already high. While such approaches are generally accepted and widely adopted there remain concerns regarding their long-term effectiveness.

4. Economic Development and the Role of Universities

To support the development of their local economy the partners in the RUnUP network need to examine how knowledge is transferred into the economy to maximise productivity and employment. The RUnUP partners operate in urban areas with generally a large number of micro-sized companies and Small and Medium-Sized Enterprises. In this context the "absorptive capacity" of companies plays a key role in determining their capability to access and make use of external knowledge in particular through external collaboration with other companies (e.g. Suppliers, Customers and Partners) or with Universities and Technology Centres.

Absorptive capacity (Cohen and Leventhal, 1990) refers to the ability of the company to support problem solving and development using innovation processes. The knowledge to enable the company to do this is often "provided" to the organisation from the external environment rather than from within the company itself. Knowledge for innovation must be absorbed through interaction and cooperation with the networks available to the company.

Specific knowledge is required for the development and implementation of new business products, processes or services. Where this information cannot be found within the knowledge base of the company the company can decide to either develop knowledge themselves or obtain knowledge from the external environment. Generally it is accepted that in most cases knowledge will be sought from the external environment looking for solutions to problems. Through its absorptive capacity the organisation learns from this external information.

To enhance the absorptive capacity of firms it is argued (IRE Science-Industry Sub Group, 2006) that the range of "innovation services" offered to SMEs should be extended to assist them with engaging with innovation support agencies and in developing longer-term relationships with the science base. Such services need to be translated through the work of "non-academic" business support specialists who can work with SMEs on a needs driven basis within the framework of approved projects and programmes integrating with academic staff as appropriate. The current role of many industrial liaison offices and technology transfer offices does not support the development of such activities.

To support growth in the knowledge economy the RUnUP partners need to develop with partners mechanisms that support the capability of companies to acquire knowledge through connections with external organisations (including Universities) in line with the transformation of the economy.

Seeking to address the performance issues of universities in supporting innovation and competitiveness in local economies in 2002 the Industrial Performance Centre of Massachusetts Institute of Technology began a research programme (Lester, 2005) examining the role of universities in supporting industrial development through participation in innovation projects and activities.

Their research adopted an "outside-in" perspective of the role of the University describing and contextualising the local economy as a set of industries that changes over time. This approach directly meets the requirements of the RUnUP partners which are either local municipalities or councils by providing a framework in which the economic activity of the urban area can be categorised and a model that recognises the issue of enhancing the absorptive capacity of SMEs is vital if local companies are to continually adapt to new market and technology opportunities and introduce new products and processes. Significantly the approach of the MIT research was driven by exploring the role of the local university in supporting local companies to take up technology and new knowledge and apply this profitably.

By adopting an industrial perspective consideration is given to situations in which the University can contribute in additional ways to local economic development, engagement is not limited solely to the creation of spin-out companies or licensing agreements, it addresses situations in which the University may not be a key economic player and takes an external perspective with consideration of the transformation of local economies over time.

This approach is core to the work in the implementation phase of the RUnUP thematic network and provides a mechanism through which local authorities can become actively engaged in defining and delivering their local approach to engage business in the knowledge economy and influencing the role of local and regional universities.

This aligns well with European Commission policy that seeks to support the engagement of universities with civil society to support the uptake of innovation (European Commission, 2006), the build up of concrete synergies between universities and surrounding society (European Commission, 2006) and supports the recommendation that exchange of knowledge with industry and within society is not the responsibility of the universities alone and that companies, national, regional and local authorities, business promotion agencies, private and public joint venture investors and other stakeholders must be active in creating the appropriate infrastructure and surrounding environment

A “cultural change” is required to highlight the importance and value of SMEs working with universities and research centres and the impact on long-term company profitability. The focus of university expertise on transfer of research to industry is distinctly different to many of the innovation requirements of SMEs who require basic support in marketing, sales and training. In this field training and mentoring services for companies are critical and existing tools for supporting companies need to be embedded within the offer to companies. At the regional and local level support needs to be co-ordinated and activities clustered to support easier access to companies.

Similarly there is a requirement to “Stimulate SMEs to innovate”. This needs SMEs to be challenged to extend their perspective of innovation and the development of innovation activities within the business. In the scope of science-industry linkages this can be improved through the adoption of business mentoring, continuous education and utilisation of schemes that place experienced academic staff and graduate students in industry e.g. UK Knowledge Transfer Partnerships (IRE Science-Industry Subgroup, 2006)

5. Challenges for Medium-Sized Cities: Case Studies from the RUnUP Network

The URBACT I network STRIKE (Van Winden, and Van den Berg, 2004) identified that urban areas are focal points in the knowledge economy and that larger cities in particular are well placed as they are locations where knowledge is created, developed and commercialised, have higher levels of educated staff, have well developed infrastructure and are well networked in the Global Economy.

In particular the large cities of Helsinki, Copenhagen, Stockholm, Lisbon and Madrid are well recognised as cities which emphasise economic development and the development of processes and methods (The Union of Capitals of the European Union, 2002). These cities highlight the direct benefit of investing resources into co-operation with Universities. Helsinki, Copenhagen and Stockholm present a technology oriented co-operation model where one of the main goals is to create new business enterprise, whereas Lisbon and Madrid present models for organising co-operation and best practice in different fields of research and services. But while medium sized-cities and large cities face some common challenges there are clear differences purely based on their size (The Work Foundation, 2006).

The STRIKE network (Van Winden, and Van den Berg, 2004) established a framework for analysis to understand the position of urban regions in the knowledge economy with distinctions between knowledge foundations and knowledge activities. Utilising this framework the distinctive challenges faced by medium-sized cities in the development of their knowledge economy can be articulated.

The quality, quantity and diversity of the universities, other education institutes and R&D activities determine for a large extent the starting position of a city in the knowledge economy and is the first foundation stone of the STRIKE framework. The RUnUP network partners face 2 of the most common challenges in this context in having no university within the city (Gateshead, Barakaldo) or

having a university whose potential for knowledge transfer and transfer of skills have not been developed to support economic development.

The second foundation stone, the economic base, determines for a large part the economic possibilities and restrictions, but also the difficulties for an urban region, within the knowledge economy. For medium-sized cities there are challenges in devising economic development strategies and a distinctive offer in particular if they have reduced industry specialisation. In this context medium sized cities need to identify what their core strengths are and actively work to these.

Geographically the cities of the RUnUP network can be considered as either from within a "city-region" namely; Newcastle-Gateshead; Bilbao-Barakaldo; Stockholm-Solna and Berlin-Potsdam or from within a wider regional context as a principal or smaller town or city, namely; Leszno, Dunkirk, Campobasso, Patras and Águeda. Those partner cities and towns operating within a city-region are economically stronger performers supporting the arguments in the literature that "larger cities in particular are well placed as they are locations where knowledge is created, developed and commercialised, have higher levels of educated staff, have well developed infrastructure and are well networked in the Global Economy". The key challenges for the 9 Medium-Sized Cities of the RUnUP network are as follows:

Gateshead

Gateshead is the largest in area of five Tyneside local authorities that cover Gateshead, Newcastle, North Tyneside, South Tyneside and Sunderland and occupies a central position in the Tyneside conurbation alongside the City of Newcastle on the South bank of the River Tyne.

The quality, quantity and diversity of Universities, other education institutes and R&D activities determine for a large extent the starting position of a city in the Knowledge economy (Van Winden and Van den Berg, 2004). The challenge for Gateshead in promoting the knowledge economy is that while it has no university located within its metropolitan borough, there is a clear need to work closely with the excellent range of nearby university institutions, and to ensure that their focus is increasingly aligned to the needs of the Gateshead economy. While it operates collaborative activity with its partner universities the council needs to fully understand how its knowledge based partners deliver activity in support of economic transformation so that as a result in can deliver new knowledge-based collaboration activity in line with economic transformation requirements. In particular it needs to articulate the state of transformation within its local economy, specifically its role within the creative industries and its support for modernisation and diversification of its manufacturing economy.

In delivering innovation led growth for Gateshead the relationship between the Council and its knowledge based partner's needs to be redefined. Work to date has identified how European policy has taken the University as its point of reference for the knowledge economy. At a local level in

Gateshead while the Business Development Team of the Council has good relationships with its knowledge based partners, it is the needs of the economy and its transformation that must be taken as the point of reference rather than the traditional approach of universities in technology transfer. In this context the Council is the only actor with a fully exclusive focus on the needs of Gateshead and the motivation to mobilise universities and knowledge based partners to support its economic development.

Águeda

Águeda is located in the central region of Portugal, in the NUT III Level area of Baixo Vouga. Its territory covers 335.2 km^2 and is therefore the largest municipality of the Aveiro district. The Municipality of Águeda is characterised by an industrial tradition with an endogenous entrepreneurial capability, which are the major factors that have contributed to the economic success of the city during the twentieth century. However, changes in the demand patterns of international markets, as well the economic crisis that took place due to these changes, affected Águeda's economic environment forcing it to rethink its approach to economic development and innovation.

Within Águeda there is a requirement to focus on entrepreneurship development on which the city of Águeda has grown but is now in need of revitalisation to reduce unemployment and improve the social and economic prosperity of the city and its population. Factors including entrepreneurial capability, the existence of a technical culture based on traditional knowledge and a large variety of small and medium enterprises in Águeda provide a framework for sustained development and an improvement in competitiveness.

The focus of the Municipality of Águeda in its development is the requalification of human resources, including unemployed graduates, developing new courses in essential areas for economic development e.g. environmental management. The aim is to enhance skills, adapting them to market needs to act as a catalyst for process improvement and product development; and the creation of a new generation of entrepreneurs accessing university knowledge and expertise focusing on new market opportunities, related with state-of-the-art environmentally sustainable technologies, creating a new local and regional cluster.

Barakaldo

Barakaldo with a population of 98,000 people is located in northern Spain, in the Autonomous Community of the Basque Country which is divided in three provinces (Álava, Bizkaia and Gipuzkoa). Barakaldo is situated in Bizkaia.

While Barakaldo has undergone significant economic transformation and economic regeneration to date this has not included the development of knowledge based economy activities. In particular Barakaldo has only a small campus location of the University of the Basque Country with no direct engagement with the technology transfer and spin-out activities of the university, determining to a

large extent the starting position of the city in the Knowledge economy (Van Winden and Van den Berg, 2004).

The Municipality of Barakaldo through its economic development agency Inguralde as the principle actor in economic development needs to develop a strategy that supports the creation of new economic sectors linked to the research activities of its university and technology centres and support existing sectors of the economy namely business services and construction. In this context, for example, Inguralde has got some business infrastructures which could be used to deliver new activities linking research into the generation of spin-out companies and entrepreneurial activity and linkages with local economy.

Campobasso

Campobasso with a population of 53,321 people is the capital of the central Italian region of Molise bordered by the Sannio and Matese mountains and the Adriatic Sea.

The integration of services for enterprises and entrepreneurs linked to knowledge and technology transfer in particular connections with universities and research centres is seen as the key problematic for Campobasso. The Municipality of Campobasso is home to 2 universities, the public University of Molise and the private Catholic University of the Sacred Heart operating alongside other knowledge-base partners including the Chamber of Commerce and Innovation Point located at the Cittadella dell' Economia in Campobasso.

The challenge facing Campobasso is that its existing economic structure is dominated by the agriculture sector. The Scientific & Technological Park of Molise (Molise Innovazione) is supporting businesses operating in this sector but is limited in its current level of engagement and support for businesses. Its operations and approach to working with business need to be further developed and enhanced. Innovation therefore has a fundamental role in supporting the competitiveness of the entire economic system. Productive regional support must be developed through initiatives that support the application of research and innovation. Through intense awareness territorial will increase awareness on the part of SMEs in the central role of research and innovation as a competitive advantage to accompany the paths of renewal and ensure the proper functioning of a unitary system of governance.

Dunkerque

The Greater Dunkerque Council consists of 18 towns, located in the region of Nord Pas de Calais that stretch from the Belgian border to the Calais region with 210 000 inhabitants. The Greater Dunkerque district is an industrial and seaport conurbation, marked by the establishment of an internationally-important iron and steel centre in the 1960s. During that period, the population doubled, mainly as a result of immigration. In the late 1980s, it went through a major economic crisis that resulted in a sharp increase in unemployment and that weakened the economic fabric with resultant negative effects on social and urban life.

Economic Diversification is seen as the key problematic in relation to Dunkerque where the university contribution to the economy is seen as insufficient and the linkage of the local economy to the energy sector makes the future particularly uncertain given the current global climate. The focus in this case is on the diversification of companies into new knowledge economy areas linked to the environmental sector and sustainability with particular links to the environmental research centre and developing entrepreneurial support services of the university.

The development of an entrepreneurial and innovation culture is of particular importance. In this context the council see the importance of a strategy that targets:

- The development of emerging and potential new economic sectors
- The creation of an entrepreneurial university campus.
- The attraction and retention of students, graduates, researchers and businesses
- The establishment of an innovation culture and environment for SMEs
- The development of Innovation and Research & Development projects with large enterprise

In particular there is a requirement to enhance the level of innovation by developing partnership working between businesses to maintain and develop industrial employment. The potential impact of concentration on Large Enterprises for employment is well recognised and there is a requirement to maximise the position of the council area as a transport and logistics hub. Specifically the Greater Council see the development of a cluster of sustainable technology supported by the involvement of the university in technology transfer and logistics as key development.

Leszno

Leszno with a population of 63,955 people is located in Central West Poland, Wielkopolska region between the economic centres of Poznań and Wrocław. Leszno is a major commercial and industrial centre with a diverse range of companies operating in industrial and service sectors and a mix of micro-companies through to large multinational companies. Employment is significantly (50%) based in industrial sectors of the economy namely machinery, furniture, metal, clothing and food production. While representing 50% of employment the industrial sector accounts for 10% of registered businesses.

The challenge facing Leszno is that its economy is based on traditional industries with low levels of productivity. In delivering innovation led growth for Leszno through the modernisation of its existing industrial base and the creation of new companies a new relationship between the municipality and business support organisations in Leszno needs to be established. Similarly the role of the higher schools in Leszno needs to be maximised to look simply beyond the role of skills development through education into examining their potential for supporting businesses through consultancy, best practice scanning, technology/foresight exercises and in creating new areas of the

economy by supporting the development of entrepreneurial services e.g. incubation to students, graduates and the wider community.

Patras

The City of Patras with a population of 171,616 people is the capital of the Peloponnese region of Western Greece and Prefecture of Achaia. In line with the economy of Greece international sea transportation and commerce are important elements of the economy of the Achaia prefecture with transportation accounting for 7.2% of gross value added recognising the importance of Patras as an important gateway to the markets of the European Union. Activities in agriculture and manufacturing remain of significant importance although activities in these primary and secondary sectors have declined by 2% and 7.5% respectively between 1995 and 2001.

The challenges facing Patras is that it has no focus on the transformation of its existing sectors of the economy (agriculture, food manufacturing) either through modernisation or diversification with no economic strategy or economic development activity at the municipality level. A lack of data at the city level means that the identification of business need and the development and delivery of business support is being based on the needs of the prefecture and the region rather than local demand. In addition given the high level of unemployment of 16.1% with business start-up rates below both the national average and convergence regions of the European Union and decline in economy activity within the primary and secondary sectors it is particularly important to consider the development of new economic activities potentially around Informatics and Communications and Environmental Management and Protection.

Potsdam

Potsdam with a population of more than 150,000 people is the capital of the state of Brandenburg within the convergence region of Brandenburg South-West. In recent years Potsdam has undergone significant economic growth with the number of new business registrations per year more than doubling between 2001 and 2004 from 720 companies to 1,824 while there has been a corresponding reduction in business de-registrations per year from 823 in 2001 down to 388 in 2004. As a result of this business growth Potsdam has created a profile for itself as a modern business centre with a rich tradition; one that is developing increasing autonomy, independent from Berlin, its immediate neighbour. The main activities within its economy is a widely diverse service sector encompassing the areas of media, information and communication, biotechnology, trade, banks, insurance and tourism.

The challenge facing Potsdam is that while its existing economy is growing and developing in the areas of Media, Information and Communications and Biotechnology, the transfer of knowledge through students and graduates into the knowledge economy is limited given predominance of the university on Research and Education and the significant number of students commuting from Berlin to Potsdam on a daily basis. While Potsdam is economically developing it is disconnected from the university community and it long term prosperity is dependant upon the enhancement

(European Commission, 2005) of links and synergies between universities and their local community.

Solna

Solna with a population of 65 000 people is located in the east central Sweden, part of the capital Stockholm metropolitan area. During the early 1990s Sweden suffered an economic crisis, during which Solna was impacted with high levels of unemployment as a result. In 1997, politicians from all political parties in Solna agreed upon a strategy to become the most business friendly municipality in Sweden. Since then, the number of companies has almost doubled to about 8 500 and there is slightly more jobs, 67 000, than inhabitants in Solna. The economy has been transformed into a service and knowledge intensive economy; there is virtually no larger scale manufacturing industry left in Solna. Expansion has intensified the past years and will continue until the year 2025, when the population is expected to reach above 90 000, with an equal number of work places. Solna then encompasses five new city districts, including the "Arena City" with the new National Arena for football and Scandinavia's biggest shopping mall, the Mall of Scandinavia.

For Solna with the world-class Karolinska Instiutet (KI) located in their municipality and existing activity already in place to support the establishment of Bio-Tech and Life Science companies through KI Science Park and KI Innovations the focus of their engagement in the RUnUP network is specifically around exploring options for supporting an additional-tier of spin-out companies through incubation and improvements to the referral process for potential spin-out and licensing opportunities alongside the establishment of stronger relationships between the City of Solna and the Karolinska Institutet. For Solna their position within the Stockholm Metropolitan area enables them to present a technology oriented co-operation model (The Union of Capitals of the European Union, 2002) where one of the main goals is to create new business enterprise.

6. Outcomes and Results

The RUnUP network has identified that medium-sized urban areas often seek to work and integrate universities into their economic activities in line with the principles of the Knowledge Economy but often take a "classical perspective" of universities focussed solely on technology transfer and spin-out activity linked to research. The introduction of a model for mapping the transition of local economies with university roles provides a structure for debate between municipalities and universities on how to drive forward and support their local business community in line with the principle of the triple helix of university-business-government relations (Leydesdorff and Etzkowitz, 2001).

Utilising this model as a framework for exploring the future activities of the RUnUP network comparisons can be made between the detailed problematic of each of the partners that will explored.

i) Creating New Economies

The creation of new economies based on Knowledge is a key focus and problematic in all of the partner cities with the exception of Dunkirk and to a lesser extent Leszno. This is not unrealistic as the partners are pro-active in seeking to develop their economies around higher value adding sectors in line with the principles of the Knowledge Economy.

For Águeda the municipality has already identified the importance of establishing a business incubator linked to environmental technologies. Such an activity linked to commercialisation approach of the University of Aveiro and the School of Technology and Management in Águeda is essential to encourage entrepreneurial development among students, graduates, staff and the local community.

In Campobasso and Patras there is a particular requirement to define these new sector opportunities in partnership with their local universities however it is considered that opportunities exist in the fields of; sustainable industries and bio-medical/biotech for Campobasso and Informatics and Communications and Environmental Management and Protection in Patras. Similarly, Barakaldo needs to define its sector focus but is clear in its aim in developing a joint local initiative that links research into the generation of spin-out companies and entrepreneurial activity, enhancing linkages with local business.

In comparison, Gateshead Council is already examining the potential for the creation of new economic activity around the cultural and creative sector, possibly focusing on a design led economy linked to the Design Centre for the North, although the viability and impact of such a focus must be examined.

In Potsdam the University needs to articulate a strategy for enhancing its awareness of structures and processes for increasing its commercialisation activities and how these can align, integrate and mutually support the education and research activities of the university. Additionally in implementing a strategy for knowledge based transformation the university needs to encourage and develop business development skills and capabilities within their university staff to support longer term strategy implementation.

For Solna the situation can be more precisely defined. With the world-class Karolinska Institute located in their municipality and existing activity already in place to support the establishment of Bio-Tech and Life Science companies through KI Science Park and KI Innovations the focus of their engagement in the RUnUP network is specifically around supporting an additional-tier of spin-out companies through incubation and improvements to the referral process for potential spin-out and licensing opportunities alongside the establishment of stronger relationships between the Municipality of Solna and the Karolinska Institute.

ii) New Industry Transplantation

While new industry transplantation can be seen traditionally and more extensively in the lower wage economies of the European Union this element of University interaction with the economy has not been identified as a problematic by the RUnUP Partners. While Leszno with a focus on the development of Special Economic Zones has a potential interest in this area its main focus is seen as the modernisation of its existing industry in the design and manufacture of products and secondly in the development of incubation activity in support of the development of new economic sectors.

iii) Diversification of the Economy

Economic Diversification is seen as the key problematic in relation to Dunkirk where the university contribution to the economy is seen as insufficient and the linkage of the local economy to the energy sector makes the future particularly uncertain given the current global climate. The focus in this case is on the diversification of companies into new knowledge economy areas linked to the environmental sector and sustainability with particular links to the environmental research centre and developing entrepreneurial support services of the university.

In addition diversification within the manufacturing sector of Águeda is a priority as with nearly 50% of employment within manufacturing and the increasing pressures of globalisation in their traditional product markets they are seeking to move into environmental technology related economic activity areas.

Diversification is also a related activity to modernisation. In this context this is a secondary priority for Gateshead, Patras and Campobasso.

iv) Upgrading of Mature Economies

Modernisation of industry is a primary goal of Leszno, whose economy is based on traditional industries with low levels of productivity. In delivering innovation led growth for Leszno through the modernisation of its existing economic base and the creation of new companies a new relationship between the municipality and business support organisations in Leszno needs to be established.

Similarly manufacturing remains a significant part of the Gateshead economy and there is a particular requirement to develop a strategy that supports the modernisation of its existing manufacturing and an upgrading of its skills base.

The challenge facing Campobasso within this context is that its existing economic structure is dominated by the agriculture sector. The Scientific & Technological Park of Molise is supporting businesses operating in this sector but is limited in its current level of engagement and support for

businesses. Its operations and approach to working with business need to be further developed and enhanced.

7. Conclusion

For medium sized cities with populations between 50,000 and 200,000 inhabitants the challenge of engaging in the knowledge economy is a critical one as they often lack the foundation of a university, commonly found in large cities that are strong in research and integration with the local economy. As a result of their size they also lack economic development strategies that has been fully articulated and debated and are unable to fully identify their economic strengths and distinctive offer.

In response to this challenge such medium-sized urban areas seek to work and integrate universities into their economic activities but often take a "classic perspective" of universities focussed solely on technology transfer and spin-out activity linked to research. The introduction of a model for mapping the transition of local economies with university roles provides a structure for debate between municipalities and universities on how to drive forward and support their local business community in line with the principle of the triple helix of university-industry-government relations.

The URBACT II RUnUP network provides a unique opportunity to examine the role of universities in urban poles from the perspective of Local Government, given the constitution of the partners rather than a traditional model taking Universities as the point of reference. In the development phase this unique perspective has provided valuable insights; namely:

1. Universities are positioned as mechanisms for research and development and subsequently licensing, patenting and spin-outs (and this is reinforced in European and National policies); although this may not be where their potential for supporting local economic development truly exists.

2. Local Government organisations see Universities primarily as vehicles for Education and Research & Development (see point 1) and expect them to support the development of their local economy by default although universities operate in regional, national and international markets and are not entirely (if at all) aligned to local priorities.

3. An economic development perspective examining the needs of the local economy, its modernisation, transformation, transplantation and new sector creation establishes common ground where local priorities can be articulated and the role of the university in this context can be openly explored and suitable knowledge transfer approaches defined in support of triple-helix development.

The RUnUP network provides a new framework for small and medium-sized local authorities and municipalities for engaging with and supporting universities in supporting innovation at the local level. The activities of RUnUP will extend and highlight the range of alternatives regarding the role of Universities in such environments. As a result the network will be able to highlight through individual partner case studies and actions and through reference to other cities the case for extending European policy regarding the role of universities and highlighting how local authorities and municipalities should adapt their local economic development policies and to support a wider engagement of their local universities with its local economies.

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